STUDIES IN THE EQUITANT ONCIDIUMS

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Introductory Notes

Oncidium Sw. section Equitantia Ldl. (Orchidaceae), the very popular Equitant Oncidiums of horticulture, consists of some twenty-two species, with innumerable forms from various locations amongst their insular distribution. There are about a dozen distinct varieties of these species, and several obvious natural hybrids.

Because of this extensive natural hybridization, it becomes essential to know what hybrids manufactured by man look like to be positive of the determinations of the plants found in nature. The senior author has collected these Oncidium species, their formas, their varieties, and their natural hybrids over a period of twenty years in the Greater Antilles; he has as yet not had the opportunity to search for them in the Lesser Antilles, where several interesting entities occur.

This group of Oncidiums exists naturally only in the West Indies, including the Bahamas, and in South Florida. All past records of collections made in South America and Central America are to be considered most doubtful, since no preserved herbarium specimens authenticate these, insofar as we are aware.

The species are in general endemic to each island, or group of islands, such as the Bahamas, the Virgins, or the islets around Antigua. Oncidium variegatum (Sw.) Sw., however, the type species of the section, does exist on several of the Antillean islands, and thus gives rise to development of a number of forms. These are quite easily recognized when in flower; all possess a crest on the labellum which is the same.

A group of species with highly colored leaves, in which anthocyanin is strongly developed, occurs in Jamaica, and a similar instance is to be found in Antigua. Another factor common to these is their compact growth habit. The Jamaican species of this group

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are Oncidium pulchellum Hk., O. tetrapetalum (Jacq.) Willd., O. berenyce Rchb.f., O. triquetrum (Sw.) R.Br., and O. gauntlettii Withner & Jesup. There are also many natural hybrids amongst the first three named, and their progeny has again hybridized to form great natural hybrid swarms in certain isolated spots on the island.

The group similar to O. variegatum (Sw.) Sw. in flower color and general vegetative appearance all have long rhizomes between the fan-shaped growths. These are O. bahamense Nash, O. sylvestre Ldl., and O. velutinum Ldl. All are much stronger in growth than O. variegatum (Sw.) Sw., and are tetraploids, but not of O. variegatum, since the type of growth and details of the crest on the labellum are distinctly different. Then, too, in the case of O. bahamense Nash, the leaves possess a high development of anthocyanin and are erect and semi-terete. Similar in basic vegetative appearance to O. variegatum (Sw.) Sw., but with very tiny growths and flowers of totally different character is the new O. hawkesianum Moir, from Cuba.

Nearly all the other species of this Equitant Oncidium alliance belong in an assemblage of plants producing compact, small growths, comprised of heavy leaves. There are no appreciable rhizomes between vegetative growths, when present these being extremely abbreviated. O. intermedium Bertero is the type species for this group, and its square, "bulldog-nose"-like type of labellum crest is found in various forms in this alliance. The greatest and horticulturally most attractive variations in O. intermedium Bertero occur in Haiti. Formas which flower at different times of the year are to be found in the Dominican Republic and in Haiti, and there are, as well, two or three distinct varieties.

Oncidium lucayanum Nash, from the northern Bahamas, Oprionochilum Krzl. from the Virgin Islands, and Oprionochilum Krzl. from the Virgin Islands, and Oprionochilum Krzl. from the Virgin Islands, and Oprionochilum Coprionochilum Coprionochilum Bertero.

Oprionochilum Krzl. from the northern Bahamas, Oprionochilum Bertero.

In Hispaniola there are others of these Oncidiums whose habit is compact as in the O. intermedium group, but their vegetative manner is different, and the all-important details of the crests of the labella are widely divergent. O. henekenii Schomb. ex Ldl. has a large flat disk-like crest; O. tuerckheimii Cgn. grows upside down and occurs at high elevations for the Equitant Oncidiums, where it even withstands occasaional frost; O. compressicaule

Withner is found at medium elevations, and in many ways does not appear to belong in this group; and O. arizajulianum Withner and Jiménez, a most recently-described plant.

Most of these Equitant Oncidiums grow in areas of limited rainfall. Several of them (O. henekenii, O. quadrilobum, O. haitiense, and a forma of O. variegatum) occur under arid conditions among thorn bushes, cacti, often with xerophytic bromeliads (Tillandsia spp.). At the other extreme, we find O. sylvestre, which occurs in the pine forests at high elevations (6000 ft.), where they live in the grass and fallen pine needles. These orchids are very hardy, and have changed to different "host" plants when the light forest and shrubbery is cleared off. In Haiti, O. variegatum grows on lantana on the roadside, as well as in citrus trees; O. velutinum prefers calabash trees (Crescentia Cujete L.); and O. intermedium now prefers both coffee trees and lantana at elevations of around 2000 feet.

Each species in this Equitant Oncidium aggregation possesses a very characteristic crest on the labellum of the flower, each one distinctly different from its related taxa. The details of this crest remain the same, no matter how the size, shape, and color of the flowers may vary due to location on the various islands.

Articles pertinent to the present study have been published by the senior author in the following periodicals:

American Orchid Society Bulletin 28: 896. 1959 (with two illustrations inverted through editorial error).

Pacific Orchid Society Bulletin 17: 64 - 80. 1959, with colored plate.

Florida Orchidist 5: 142 - 152. 1962, but unfortunately the illustrations here are improperly captioned by the editors.

American Orchid Society Bulletin 35: 45. 1966.

Checklist of the Equitant Oncidiums

The following is a listing of the taxa of <u>Oncidium</u> Sw. section <u>Equitantia</u> Ldl. which at the present time are considered valid by the authors. This should, however, be considered a preliminary roster, since subsequent exploration of the habitat region and critical research will doubtless add in considerable degree to it.

For the convenience of the reader, the taxa are indicated in alphabetical sequence.

- O. arizajulianum Withner & Jiménez in Amer. Orch. Soc. Bull. 36: 220, with pl. page 218 (there confusingly captioned "Oncidium arizae Withner & Jiménez"). 1967.
- O. bahamense Nash ex Britt. & Millsp., Baham. Fl. 97. 1920.
- O. berenyce Rchb.f. in Bot. Zeit. 20: 215. 1862, as berenice.
- O. compressicaule Withner in Amer. Orch. Soc. Bull. 35: 719.
- O. x floride-phillipsae Moir & Hawkes, infra. (O. prionochilum Krzl. X O. variegatum (Sw.) Sw. var. purpureum Moir & Hawkes)
- O. gauntlettii Withner & Jesup in Amer. Orch. Soc. Bull. 33: 461. 1964.
- O. gundlachii C. Wright ex Griseb., Cat. Pl. Cub. 266. 1866.
- O. haitiense Leonard & Ames ex Ames, Orchid. 7: 159. 1922.
- O. hawkesianum Moir, infra.
- O. henekenii Schomb. ex Ldl., Fol. Orch. Oncid. 11. 1855.
- O. intermedium Bertero ex Spreng., Syst. Veg. 3: 728. 1826.
- var. alborubrum Moir & Hawkes, infra.
- var. album Moir & Hawkes, infra.
- O. x jamaicense Moir & Hawkes, infra. (O. pulchellum Hk. X
 O. tetrapetalum (Jacq.) Willd.)
- O. leiboldii Rchb.f. in Walp., Ann. 6:718. 1863.
- var. album Moir & Hawkes, infra.
- var. majus Moir & Hawkes, infra.
- O. lemonianum Ldl. in Bot. Reg. 21: pl. 1789. 1835.
- O. lucayanum Nash ex Britt. & Millsp., Baham. Fl. 98. 1920.
- O. osmentii Withner in Amer. Orch. Soc. Bull. 36: 220, pl. 1967.
- O. prionochilum Krzl. in Engl., Pflanzenr. IV, 50: 233. 1922.
- O. pulchellum Hk. in Bot. Mag. pl. 2773. 1827.
- O. quadrilobum C. Schweinf. in Amer. Orch. Soc. Bull. 14:
- O. x sanctae-anae Moir & Hawkes, infra. (O. berenyce Rchb.f. X O. pulchellum Hk.)
- O. sylvestre Ldl. in Ann. & Mag. Nat. Hist. III, 1: 332. 1858.
- O. tetrapetalum (Jacq.) Willd., Spec. Pl. 4: 112. 1806.
- O. triquetrum (Sw.) R. Br. in Ait., Hort. Kew., ed. 2, 5: 216. 1813.
- O. tuerckheimii Cgn. in Urb., Symb. Antill. 7: 181. 1912.
- O. urophyllum Lodd. ex Ldl. in Bot. Reg. 28: pl. 54. 1842.
- O. usneoides Ldl. in Ann. & Mag. Nat. Hist. III, 1:333. 1858.
- O. variegatum (Sw.) Sw. in Vet. Akad. Handl. Stockh. 21: 240.
- var. album Moir & Hawkes, infra.
- var. purpureum Moir & Hawkes, infra.
- var. roseum Moir & Hawkes, infra.
- O. velutinum Ldl. in Paxt., Flow. Gard. 1: 166. 1851.

O. x withnerianum Moir, infra. (O. berenyce Rchb.f. X O. tetrapetalum (Jacq.) Willd.)

ONCIDIUM x FLORIDE - PHILLIPSAE Moir & Hawkes, nat. hybr.
nov. (O. prionochilum Krzl. X O. variegatum (Sw.) Sw.
var. purpureum Moir & Hawkes)

Habitu inter parentiis intermedium, differt in amplitudinis colorisque floribus.

Pseudobulbs absent. Leaves to 8 in number, rigid, broadly lanceolate, acuminate, cartilaginous, serrate marginally, mostly falcate three-sided, the upper edges canaliculate with groove deepest at center, 6 - 8 cm long, 8 - 15 mm broad at middle. Scape initially erect, later arching under weight of first flowers, and still later producing adventitious plantlets at joints of peduncle below flowers, up to 80 cm long; bracts small, triangular. Flowers of most unusual coloration -- purple on reverse, and yellow with purple edges on frontal surface, this side similar to the color of O. prionochilum Krzl., with the marginal markings of the other parent. Dorsal sepal oblong, 8 - 10 mm long, 2 -3 mm broad, mostly yellow frontally, and purple behind. Lateral sepals connate into a synsepal, slightly longer than dorsal. Petals obovate to cuneate, acute 8 - 10 mm long, 4 - 6 mm broad at a point three-quarters from apex, yellow with distinct purple margin. Lip with small oblong, slightly reflexed lateral lobes, rounded at apex, 4 - 5 mm long; separating these from the lower lobes is an isthmus of 5 - 6 mm length and 1.2 cm width, this bearing a crest which is a combination of both parents, in 3 series; the two lower lobes large, quadrate, each 2 cm in diameter, the length from base to apex of lip 2.7 cm, the breadth similar, the color a yellow pattern of O. prionochilum Krzl. superimposed on the purple of the other parent, so that the sharply dentate edge of its lip shows clearly on the margin of purple surrounding it. Column-wings large, acute at apex, extending above the anther-cap.

VIRGIN ISLANDS: St. Thomas: Water Isle, in harbor of Charlotte Amalie, in shrubs and on mossy humus on the ground, alt. about 25 feet, summer 1963, Walter Phillips s.n., flowering in cultivation, Honolulu, 1966 (Type in Herbarium of Bishop Museum).

This striking natural hybrid, the most unusual one in this section of Oncidium known to date by the authors, is completely intermediate between the two parents, except for dimensions

and coloration of the flowers. The influence of O. variegatum (Sw.) Sw. var. purpureum Moir & Hawkes is at once apparent, with the yellow hue of O. prionochilum Krzl. evident only on the anterior face of the flower.

Oncidium x floride-phillipsae is named to honor Floride Phillips, the wife of the original collector of this unique orchid on his own property at Water Isle.

ONCIDIUM HAWKESIANUM Moir, sp. nov.

Planta parvissima, caespitosis effucis producta. Floribus inter sectione generis distinctis.

Plant very small for the genus, 2 - 3 cm tall. Pseudobulbs absent. Rhizomes 10 - 20 cm in length, wirey, 1 mm in diameter, arising from leaf-axils and forming a mass of growths extending in all directions. Leaves short and fat, to 2 - 2.5 cm long and 8 mm broad, cultrate, compressed, canaliculate, oblong, obtusely acute, towards apex of individual leaf-fans more heavily denticulate than below on each. Inflorescences slender, erect, 8 cm long, racemose, with 2 - 4 flowers; floral bracts very small. Flowers with sepals and petals greenish with pink flush, the lip bright pink, with the crest dark yellow. Dorsal sepal lanceolate, clawed at base, apiculate, 5 - 6 mm long and 1 mm broad. Lateral sepals connate to form a synsepal hidden behind the lip. Petals oblong, rounded-apiculate, 6 - 7 mm long and 2 mm broad. Lip convex, with lower lobes reflexed at sides to give the appearance of a half-tube or of a full skirt; lower lobes 1 cm in diameter from crest, with apex slightly sinuate; upper lobes minute, rounded, the isthmus between both sets of lobes short and narrow; crest rich yellow, with tubercles in 2 series, the center projection of lower series the most prominent. Column-wings small, scimitar-shaped, acute, denticulate to entire.

CUBA: Oriente: Northern coast, but precise locality not known. Flowering in cultivation, Honolulu, 1953, Moir s. n. (Type in Herbarium of Bishop Museum).

This unique species, among the most diminutive of all members of the genus Oncidium Sw., does not appear to be allied to any species heretofore described. Its growth is somewhat reminiscent of a very miniature form of O. variegatum (Sw.) Sw., from which it is at once distinguished by its rampant clumpforming habit and by both structure and coloration of the attractive flowers.

Oncidium hawkesianum is named, with pleasure, to honor my very good friend, the junior author of this study, whose works are well known to orchidists and orchidologists in all parts of the world.

ONCIDIUM INTERMEDIUM Bertero ex Sprengel, Syst. Veg. 3: 728. 1826.

The typical species occurs extensively in Hispaniola, both in Haiti and the Dominican Republic, growing as an epiphyte on small trees in dry shrubby areas, seldom at altitudes exceeding 2000 feet.

Marked variations occur among flowering periods of O. intermedium and its variants in the wild. The smaller forms bloom during the spring months in Eastern Hispaniola, e.g., at El Seibo, D.R. The medium-sized forms produce their flowers during the summertime in the central part of the island, e.g., San José de las Matas and Cabral. And the largest forms flower during the autumn months in Haiti, e.g., southwest of Grenier. These characteristics are maintained even when the plants are removed to far-distant places, and all are grown under one climatic condition, as in the senior author's collection at "Lipolani" in Honolulu. Through artificial hybridization, the forms from Central Hispaniola and the western part of the island, Haiti, combined, produce still further increases in floral but not vegetative dimensions.

We presently consider the following two variants of Oncidium intermedium worthy of botanical establishment:

ONCIDIUM INTERMEDIUM Bertero ex Spreng. var. ALBORU-BRUM Moir & Hawkes, var. nov.

Differt a forma typica planta dimidia compacta, floribus dimidia, sepalis petalisque albis, labello aurantiaco.

Similar in growth habit and shape to the typical species, but plant half-size, about 5 cm tall, more compact, with inflorescences 10 - 20 cm tall, with flowers half the size, and averaging about 10 per inflorescence. Sepals and petals are white, while the lip is orangey-red.

HISPANIOLA: Haiti and the Dominican Republic (the variety occurs in both countries), near Dajabón in D.R. and southwest of Grenier in Haiti, epiphyte, alt. 100 - 1800 feet, 1958, flowering in cultivation, Honolulu, 1963. (Type in Herbarium of Bishop Museum).

Natural hybrids occur, in Haiti, Département de la Ouest, between the typical species and this handsome var. alborubrum, in which white, red, yellow, and patterned parts are found mixed amongst sepals, petals, and labella.

ONCIDIUM INTERMEDIUM Bertero ex Spreng. var. ALBUM Moir & Hawkes, var. nov.

Differt a forma typica planta dimidia, floribus dimidia albis, in crista labello flava ornata.

Similar in growth habit to the typical species, but half the size, about 5 cm tall, with flowers half the size, fewer in number, borne on inflorescences 10 - 20 cm tall. Sepals, petals, and lip are all pure white, with only a touch of yellow on the crest of the lip.

HISPANIOLA: Haiti: in area southwest of Grenier, growing as epiphyte on lantana, collected by William Osment of Hollywood, Florida, 1966.

ONCIDIUM x JAMAICENSE Moir & Hawkes, nat. hybr. nov.

(O. pulchellum Hk. X O. tetrapetalum (Jacq.) Willd.)

Habitu inter parentiis intermedium, floribus intermediis, variabilis.

Pseudobulbs absent. Growth compact, as in both parents, closer to that of O. tetrapetalum (Jacq.) Willd., the leaves 6 -10 in number, lanceolate, acute, canaliculate, rigid, to 15 cm long and 3 mm broad, the margins slightly denticulate. Inflorescence erect, the scape to 40 cm tall, racemose; floral bracts narrowly triangular, membranaceous, 3 mm long; pedicel with ovary variable in length from 1.5 - 3.5 cm long. Flowers showy, all segments variable in color from white to pink with markings of dull reddish-brown on sepals, petals, and isthmus of the lip. Dorsal sepal oblong, narrowing considerably toward base, acute. Lateral sepals connate into a concave, oblong, obtuse synsepal with a 2-apiculate tip, this segment hidden by the lip; all sepals 8 mm long, or the synsepal often somewhat longer. Petals obovate, obtuse to shortly apiculate, marginally crenulate, 1 cm long and 6 mm broad. Lip 4-lobed, the anterior pair of lobes squarish, retrorse, the extension of the isthmus upwards broader at top than bottom; lobes of midlobe varying from slightly reflexed to slightly concave, broad, reniform, deeply emarginate apically, undulate; lip white to pink (never rose, as in O. pulchellum Hk.), 1.5 cm long and 1 - 2 cm broad at widest point; crest yellow, composed of 5 tubercles, of which the median one in the lower set is most prominent. Column-wings large, scimitarshaped, acute, denticulate.

JAMAICA: Mostly near Brownstown, epiphytic in dry forest on short trees, alt. 1500 feet, 1955, flowering in cultivation, Honolulu, 1967, Moir s.n. (Type in Herbarium of Bishop Museum).

This striking natural hybrid is not widespread in Jamaica, being known to date principally in St. Ann Parish. Its flowers vary in coloration, depending apparently on whether the O. pulchellum parent had blossoms of light rose or dark rose hue.

Oncidium jamaica is designated as a natural hybrid, with the same parentage, on page 571 of Sander's One-Table List of Orchid Hybrids 1946 - 1960, Volume I (May 1961), and on pages 573 and 574 of the same work, it is listed as Oncidium Jamaica, with an initial capital letter. Moir states: "I had named my hybrid Oncidium jamaica (O. pulchellum Hk. X O. tetrapetalum (Jacq.) Willd.) and was about to register it as that when I showed this to David Sander at the 2nd World Orchid Conference. So he decided to put the fact in the Sander's One-Table List."

ONCIDIUM LEIBOLDII Rchb. f.

The typical species occurs in Cuba and Puerto Rico, but not in the Dominican Republic nor in the Bahamas, though it has been suggested through misidentification from both areas by casual students in the recent literature.

We consider the following two varieties worthy of validation botanically at this point in our studies:

ONCIDIUM LEIBOLDII Rchb.f. var. ALBUM Moir & Hawkes, var. nov.

Differt a forma typica planta dimidia, foliis tenuis erectis, habitu compactis. Floribus albis, in crista labello flava ornata.

Plant half as large as typical species, the leaves even more slender and more erect, and the habit more compact. Flowers similar in size to typical species, pure white, except for some yellow on the crest of the labellum.

CUBA: Precise locality unknown. Flowering in cultivation, Honolulu, 1967, Moir s.n. (Type in Herbarium of Bishop Museum).

ONCIDIUM LEIBOLDII Rchb.f. var. MAJUS Moir & Hawkes, var. nov.

Differt a forma typica planta bis majoribus, maculis floribus plus intensis.

Plant twice the dimensions of the typical species, the leaves exceptionally sharp-pointed. Inflorescences numerous, many-flowered. Flowers somewhat larger than those of the typical species, the brown markings on the segments of more intense hue.

HABITAT UNKNOWN: Flowering in cultivation, Honolulu, 1966, Moir s.n. (Type in Herbarium of Bishop Museum).

ONCIDIUM x SANCTAE - ANAE Moir & Hawkes, nat. hybr.
nov. (O. berenyce Rchb.f. X O. pulchellum Hk.)
Habitu inter parentiis intermedium, floribus intermediis, variabilis.

Pseudobulbs absent. Growth compact as in both parents. Leaves with high development of anthocyanin, giving them a purple-green hue, fleshy, lanceolate, rounded in cross-section, acute, canaliculate, somewhat complicate, slightly denticulate, up to 12 cm long and 1 cm broad. Inflorescence 30 - 80 cm long, pendent, racemose at first, paniculate on second flowering near plant; floral bracts triangular, up to 3 mm long; pedicels with ovary to 2 cm long. Flowers 3 cm long, 2 cm broad, the sepals and petals rose to ruby-colored, with lavender sheen and brownish shading, the lip lavender-rose, strongly veined in deeper color to with a mask either white with orange dots or brown with reddish dots. Sepals clawed, lanceolate, the apex concave, acute, 7 - 8 mm long and 2 - 3 mm broad, the dorsal narrower than the synsepal formed by the two lateral sepals. Petals clawed, ovate, obtuse, the margins strongly crenulate, 8 mm long and 4 mm broad. Lip strongly 4-lobed, the lateral lobes rounded, obtuse, retrorse, breadth of lip across these lobes 1.5 - 2 cm; isthmus 1 cm or less, tapered, the margins sometimes denticulate; anterior lobes (midlobe) large, reniform, slightly concave, slightly projected forward, apically deeply emarginate, the margins undulate, 3 cm long and 3 cm broad; crest 7-parted, the tubercles more blunt than in those of O. berenyce Rchb.f. and paler yellow than in that parent species, otherwise much like it. Column-wings ample, apically acute, semi-falcate, crenulate, rose- to violet-colored.

JAMAICA: Near Brownstown, epiphyte in dry deciduous forests in a belt with rainfall averaging less than 75 inches per annum, alt. 1500 - 2000 feet, 1955, flowering in cultivation, Honolulu, 1967, Moir s.n. (Type in Herbarium of Bishop Museum).

Repeated collections in St. Ann Parish, coupled with repeat-

ed hybridization between <u>O. pulchellum</u> Hk. and <u>O. berenyce</u> Rchb.f. under cultivation at "Lipolani" in Honolulu have produced consistent, identical flowers of this singularly attractive natural hybrid <u>Oncidium</u>.

ONCIDIUM x WITHNERIANUM Moir, nat. hybr. nov. (O. berenyce Rchb.f. X O. tetrapetalum (Jacq.) Willd.)

Habitu inter parentiis intermedium, floribus intermediis,
variabilis.

Pseudobulbs absent. Growth compact as in both parents, highly anthocyanic. Leaves semi-terete, canaliculate, lanceolate, acute, to 12 cm long. Inflorescence pendent, 30 cm long or less, racemose, few- to many-flowered; floral bracts small, triangular; pedicellate ovary to 1.5 cm long. Flowers measuring 2 cm X 1.2 cm, the sepals and petals pale pink with brown markings, the lip pale pink, the isthmus covered with a mask of brown and pink. Sepals slightly clawed, lanceolate, acute, the dorsal 7 - 8 mm long and 3 mm broad, 2-apiculate. slightly clawed, ovate, obtuse, the margins lightly crenulate, 8 mm long, to 4 mm broad near apex. Lip 4-lobed, the lateral lobes small, obtuse; isthmus broad, tapering from lateral lobes to base below crest, sometimes denticulate; anterior lobes reniform, with emarginate apex, 2 cm across and 1.5 cm long; crest 7-parted, the tubercles not as sharp-pointed as in O. berenyce Rchb. f. Column-wings semi-falcate, pink to violet in color.

JAMAICA: Near Brownstown, epiphyte in dry deciduous forests in a belt with rainfall averaging less than 75 inches per annum, alt. 1500 - 2000 feet, 1955, flowering in cultivation, Honolulu, 1967, Moir s.n. (Type in Herbarium of Bishop Museum).

This is one of many hybrids, along with O. x jamaicense Moir & Hawkes and O. x sanctae-anae Moir & Hawkes, supra, to be encountered in the vicinity of Brownstown, St. Ann Parish, Jamaica, where the three component species—Oncidium berenyce Rchb.f., O. pulchellum Hk., and O. tetrapetalum (Jacq.) Willd.—until recent years occurred in great numbers.

The new natural hybrid is named for Carl L. Withner, of Brooklyn College, who has uniquely published on the Equitant Oncidiums in recent years.